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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,012	07/08/2003	Tetsuhito Ikeda	00862.023119	9519

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EXAMINER

NGUYEN, LAM S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,012

Applicant(s)

IKEDA ET AL.

Examiner

LAM S. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 11/2, 11/2/3, 11/2/3/4-5, 11/2/3/5/6-7, 11/2/3/8, and 11/2/3/8/9-10 is/are rejected.
- 7) ☒ Claim(s) 7, 11/2/3/5/7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The indicated allowability of claims 1-2 is withdrawn in view of the newly discovered reference(s) to Ikeda (JP 2000-289220) and Eblen et al. (US 4620195). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6, 8-10, 11/2, 11/2/3, 11/2/3/4-5, 11/2/3/5/6-7, 11/2/3/8, and 11/2/3/8/9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (JP 2000-289220) in view of Eblen et al. (US 4620195) (*Note: The equivalent document US 6540318 of the reference JP 2000-289220 is used as an English translation*).

Referring to claims 1-2:

Ikeda discloses a liquid detection apparatus comprising:

detection means (*FIG. 4, element 203*), provided near a discharge path of liquid discharged from a liquid supply source (*FIG. 4, elements 101, 201*), for detecting electromagnetic waves radiated from an area of the discharge path;

determination means for determining whether or not the liquid is present and, if present, determining the amount of the discharged liquid based on the electromagnetic waves detected by said detection means (*Abstract*).

Ikeda does not disclose suppression means for minimizing electromagnetic waves radiated from a medium other than the liquid or variation in the electromagnetic waves during detection of the electromagnetic waves by said detection means, wherein said suppression means is comprises a shield provided in front of a source of infrared rays radiated from a medium other than the liquid (**Referring to claim 4**), wherein said suppression means is comprises a housing that covers the infrared sensor and an infrared ray detection field of the infrared sensor (**Referring to claim 5**), wherein the housing is provided with an opening for passage of the discharged liquid (**Referring to claim 6**).

Eblen et al. discloses an ink jet printer having a sensor (*FIG. 4-5, element 7*) provided near a discharge path (*FIG. 4, element 65*) of ink discharged from an ink jet head (*FIG. 4, element 60*) for non-contact detecting or monitoring ink drops ejected from the inkjet printhead (*column 4, lines 49-56*), wherein the sensor is preferably surrounded by suppression means as a housing provided with an opening for passage of the discharged liquid for minimizing electromagnetic waves radiated from surrounding sources (*FIG. 4-5, elements 5- 6 and column 4, lines 55-60: an electromagnetic interference shielding surrounding the sensor shields or minimizes the sensor from electromagnetic interference from undesired sources*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the printing apparatus disclosed by Ikeda such as surrounding the sensor by the electromagnetic shielding as disclosed by Eblen et al. The motivation for doing so would have been to shield/isolate the sensor from electromagnetic interference from undesired sources as taught by Eblen et al. (*column 4, lines 55-60*).

Ikeda also discloses the following claimed inventions:

Referring to claim 3: wherein the electromagnetic waves are infrared rays and said detection means comprises an infrared sensor (*FIG. 4: INFRARED RAY*).

Referring to claim 8: wherein the liquid includes ink (*Abstract*).

Referring to claim 9: wherein the liquid supply source is comprises an inkjet, printhead (*FIG. 4, element 4*), and the infrared sensor (*FIG. 4, element 203*) is located in front of ink discharge nozzles (*FIG. 4, element 201*) on of the inkjet printhead, near the discharge path of ink droplets discharged from the inkjet printhead.

Referring to claim 10: wherein the liquid supply source is comprises an ink tank (*FIG. 10, element 401*) and the infrared sensor (*FIG. 10, element 203*) is located near a tube (*FIG. 10, element 402*) connected to an outflow outlet provided in the ink tank.

Referring to claim 11/2, 11/2/3, 11/2/3/4-5, 11/2/3/5/6-7, 11/2/3/8, 11/2/3/8/9-10: an inkjet printhead having an electrothermal transducer which generates heat energy to be applied to ink in order to discharge the ink by using the heat energy and adjustment means for adjusting the temperature of the ink for detection of ink droplets by the liquid detection apparatus by applying electric current to the electrothermal transducer (*column 4, line 63 to column 5, line 5*).

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reasons for the indication of the allowability of the claim is the inclusions therein, in combination as currently claimed, of the limitation that wherein an air intake opening is provided on the housing, and a fan is provided at a position opposite the air intake opening on

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the housing so as to generate a steady is neither disclosed nor taught by the cited prior art of record, alone or in combination.

Claim 11/2/3/5/7 is allowable because it depends directly/indirectly on claim 7.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151.

The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
May 23, 2005


HAI PHAM
PRIMARY EXAMINER